



Uncertainties in Winds & Water Levels, and Their Roles in a Multidecadal Coastal Water Level Reanalysis

Taylor Asher
UNC Resilience Center

The atmosphere-ocean system is dynamic, complex, and vast. The utility of understanding it is similarly so, from carbon cycling and climate change, to weather prediction and harmful algal blooms. But on the oceanic side, the traits of greatest practical interest are ultimately what happens at the coast, where the ocean comes to bear upon the bulk of civilization. They determine the coastal erosion that necessitates we nourish beaches, the sea level rise-driven high tide/nuisance flooding that damages our infrastructure, the surfing forecasts that help us play, and the hurricane evacuations that, hopefully, keep us safe.

To support many such efforts, our group has performed a reanalysis of coastal water levels and waves from 1979 through the present. Named the NOAA Coastal Ocean Reanalysis (CORA), it will serve as a major product from NOAA for a wide range of coastal use cases, from sea level rise to coastal flooding. In this talk, I will explain the reanalysis's methods, which uses ERA5 meteorology, a coupled ocean and wave model, and an artificial intelligence-driven data assimilation scheme. I will also present details on model performance and how it relates to the accuracy of the meteorology. Throughout, I will discuss the role of uncertainty and how it, too, is dynamic and complex across the problem space. I will also explain some of the many uses these data will have for NOAA and other government agencies in derived products, and how the data are being served to the public with an API and online data calculator.

Thursday, 13 June 2024, 2:00PM

Refreshments 1:45PM

Please also join colleagues for refreshments and informal discussion after the seminar until 3:30pm

NCAR-Foothills Laboratory, 3450 Mitchell Lane

FL2-1022, Large Auditorium

Seminar will also be live webcast

<https://operations.ucar.edu/live-mmm>

Participants may ask questions during the seminar via Slido.